

***FlyBy Math™* Alignment**
New York SED Math Standards

Problem Solving Strand

Students will solve problems that arise in mathematics and in other contexts.

Standard	<i>FlyBy Math™</i> Activities
A.PS.4 Use multiple representations to represent and explain problem situations (e.g., verbally, numerically, algebraically, graphically)	<p>--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.</p> <p>--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.</p>

Students will apply and adapt a variety of appropriate strategies to solve problems.

Standard	<i>FlyBy Math™</i> Activities
A.PS.5 Choose an effective approach to solve a problem from a variety of strategies (numeric, graphic, algebraic)	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
A.PS.7 Work in collaboration with others to propose, critique, evaluate, and value alternative approaches to problem solving	<p>--Conduct a simulation of each airplane scenario.</p> <p>--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.</p>

Students will monitor and reflect on the process of mathematical problem solving.

Standard	<i>FlyBy Math™</i> Activities
A.PS.10 Evaluate the relative efficiency of different representations and solution methods of a problem	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

Communication Strand

Students will communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

Standard	<i>FlyBy Math™</i> Activities
A.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, Venn diagrams, and other diagrams	<p>--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.</p> <p>--Explain and justify solutions regarding the motion of</p>

	two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
A.CM.4 Share organized mathematical ideas through the manipulation of objects, numerical tables, drawings, pictures, charts, graphs, tables, diagrams, models, and symbols in written and verbal form	<p>--Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.</p> <p>--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.</p>

Connections Strand

Students will understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

Standard	<i>FlyBy Math™</i> Activities
A.CN.3 Model situations mathematically, using representations to draw conclusions and formulate new situations	<p>--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.</p> <p>--Predict outcomes and explain results of mathematical models and experiments.</p>
A.CN.5 Understand how quantitative models connect to various physical models and representations	<p>--Predict outcomes and explain results of mathematical models and experiments.</p> <p>--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.</p>

Students will recognize and apply mathematics in contexts outside of mathematics.

Standard	<i>FlyBy Math™</i> Activities
A.CN.6 Recognize and apply mathematics to situations in the outside world	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation
A.CN.7 Recognize and apply mathematics to problem situations that develop outside of mathematics	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation.

Representation Strand	
Students will create and use representations to organize, record, and communicate mathematical ideas.	
Standard	<i>FlyBy Math™</i> Activities
A.R.1 Use physical objects, drawings, charts, tables, graphs, symbols, equations, or objects created using technology as representations of mathematical concepts	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
A.R.2 Recognize, compare, and use an array of representational forms	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
Students will select, apply, and translate among mathematical representations to solve problems.	
Standard	<i>FlyBy Math™</i> Activities
A.R.4 Select appropriate representations to solve problem situations	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
A.R.5 Investigate relationships between different representations and their impact on a given problem	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
Students will use representations to model and interpret physical, social, and mathematical phenomena.	
Standard	<i>FlyBy Math™</i> Activities
A.R.6 Use mathematics to show and understand physical phenomena (e.g., find the height of a building if a ladder of a given length forms a given angle of elevation with the ground)	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Algebra Strand	
Students will represent and analyze algebraically a wide variety of problem solving situations.	
Standard	<i>FlyBy Math™</i> Activities
A.A.7 Analyze and solve verbal problems whose solution requires solving systems of linear equations in two variables	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Students will recognize, use, and represent algebraically patterns, relations, and functions.**Standard**

A.A.32 Graph and explain slope as a rate of change between dependent and independent variables

***FlyBy Math™* Activities**

--Interpret the slope of a line in the context of a distance-rate-time problem.

A.A.33 Determine the slope of a line, given the coordinates of two points on the line

--Interpret the slope of a line in the context of a distance-rate-time problem.

Geometry Strand**Students will apply coordinate geometry to analyze problem solving situations.****Standard**

A.G.7 Graph and solve systems of linear equations and inequalities with rational coefficients in two variables (See A.A.10)

***FlyBy Math™* Activities**

--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Measurement Strand**Students will determine what can be measured and how, using appropriate methods and formulas.****Standard**

A.M.1 Calculate rates using appropriate units (e.g., rate of a space ship versus the rate of a snail)

***FlyBy Math™* Activities**

--Use the distance-rate-time formula to predict and analyze aircraft conflicts.